

iTOP-6818-Android5.1-RFID 测试例程

rc522 驱动在 Android 系统的内核是默认集成的，用户可以在开发板上使用命令 “ls /dev | grep rc522” 来检测。如果出现了 “rc522” 的结果，如下图所示。

```
root@s5p6818_drone:/ # ls /dev | grep rc522
rc522
root@s5p6818_drone:/ #
```

则说明可以直接使用压缩包中 “rfidtest/bin” 下的 “rfidtest.apk” 在 Android 系统测试 RFID，如果没有出现 “rc522” 这个节点，则需要通过下面的步骤对内核进行配置。

1 配置 rc522 驱动

先配置好对应的缺省文件，然后使用命令 “make menuconfig” 进入 menuconfig，如下图所示。

```
.Config - Linux/x86_64 3.4.39 Kernel Configuration
Linux/x86_64 3.4.39 Kernel Configuration
x Arrow keys navigate the menu. <Enter> selects submenus --->. x
x Highlighted letters are hotkeys. Pressing <Y> includes, <N> x
x excludes, <M> modularizes features. Press <Esc><Esc> to x
x exit, <?> for Help, </> for Search. Legend: [*] built-in x
x lqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqk x
x x General setup ---> x x
x x [*] Enable loadable module support ---> x x
x x [*] Enable the block layer ---> x x
x x Processor type and features ---> x x
x x Power management and ACPI options ---> x x
x x Bus options (PCI etc.) ---> x x
x x Executable file formats / Emulations ---> x x
x x [*] Networking support ---> x x
x x Device Drivers ---> x x
x x Firmware Drivers ---> x x
x x File systems ---> x x
x x Kernel hacking ---> x x
x x Security options ---> x x
x mqqqqv(*)qqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj x
x tqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqU
x x <select> <Exit> <Help> x
x mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj
```

选择并进入图中高亮的 “Device Drivers”，然后选择并进入 “SPI support”，如下图所示。

```
Device Drivers
x Arrow keys navigate the menu. <Enter> selects submenus --->. x
x Highlighted letters are hotkeys. Pressing <Y> includes, <N> x
x excludes, <M> modularizes features. Press <Esc><Esc> to x
x exit, <?> for Help, </> for Search. Legend: [*] built-in x
x lqqqq(-)qqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqk x
x x <> Generic Target Core Mod (TCM) and ConfigFS Infrastrux x
x x [ ] Fusion MPT device support (NEW) ---> x x
x x IEEE 1394 (FireWire) support ---> x x
x x <> I2O device support (NEW) ---> x x
x x [ ] Macintosh device drivers (NEW) ---> x x
x x [*] Network device support ---> x x
x x [ ] ISDN support ---> x x
x x Input device support ---> x x
x x Character devices ---> x x
x x <*> I2C support ---> x x
x x [*] SPI support ---> x x
x x <> HSI support ---> x x
x x PPS support ---> x x
x mqqqq(-)qqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj x
```

如下图所示，使用按键 y 选择高亮部分 “RC522 Module driver support”

```
SPI Support
Arrow keys navigate the menu. <Enter> selects submenus --->. x
Highlighted letters are hotkeys. Pressing <Y> includes, <N> x
excludes, <M> modularizes features. Press <Esc><Esc> to x
exit, <?> for Help, </> for Search. Legend: [*] built-in x
lqqqq(-)qqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqk x
x *** SPI Master Controller Drivers *** x x
x <> Altera SPI Controller x x
x <> Utilities for Bitbanging SPI masters x x
x <> GPIO-based bitbanging SPI Master x x
x <> OpenCores tiny SPI x x
x <> SLSI SPI x x
x <> Intel EG20T PCH/LAPIS Semicon IOH(ML7213/ML7223/ML x x
x <> Xilinx SPI controller common module x x
x <> DesignWare SPI controller core support x x
x *** SPI Protocol Masters *** x x
x <> User mode SPI device driver support x x
x <> Infineon TLE62X0 (for power switching) x x
x <*> RC522 Module driver support x x
mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj x
qqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqq u
```

到这一步，rc522 的驱动就配置好了，由于 CAN 和 rc522 服用一路 SPI，所以我們還需要去掉 CAN 的驱动。

2 去掉 CAN 的驱动

CAN 驱动的关键词为 “CAN_MCP251X”，配置 CAN 的驱动，也应先进入 menuconfig 的打开界面，如下图所示。

[illegible]

选择并进入 “Networking support”，如下图所示。

[illegible]

选择并取消 “CAN bus subsystem support” 前面的星号，如下图所示。

```
lqqqqqqqqqqqqqqqqqqqqqqqqqqqqqq Networking support qqqqqqqqqqqqqqqqqqqqqk
x Arrow keys navigate the menu. <Enter> selects submenus --->. x
x Highlighted letters are hotkeys. Pressing <Y> includes, <N> x
x excludes, <M> modularizes features. Press <Esc><Esc> to x
x exit, <?> for Help, </> for search. Legend: [*] built-in x
x lqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqk
x x --- Networking support x x
x x Networking options ---> x x
x x [ ] Amateur Radio support ---> x x
x x < > CAN bus subsystem support ---> x x
x x < > IrDA (infrared) subsystem support ---> x x
x x <*> Bluetooth subsystem support ---> x x
x x < > RxRPC session sockets x x
x x -* wireless ---> x x
x x < > WiMAX Wireless Broadband support ---> x x
x x < > RF switch subsystem support ---> x x
x x < > Plan 9 Resource Sharing support (9P2000) ---> x x
x x < > CAIF support ---> x x
x x < > Ceph core library (EXPERIMENTAL) x x
x mqqqqqv(-)qqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj
```

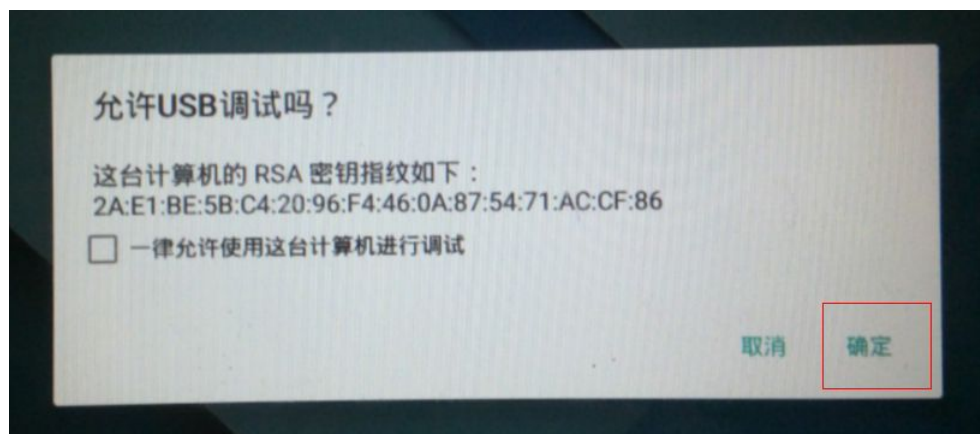
退出保存，编译。重新生成的内核就是支持 RFID 的内核了。接下来用户只要安装压缩包内文件夹 ‘rfidtest/bin’ 下的 “rfidtest.apk” 即可在 Android 系统测试 RFID。

3 测试过程

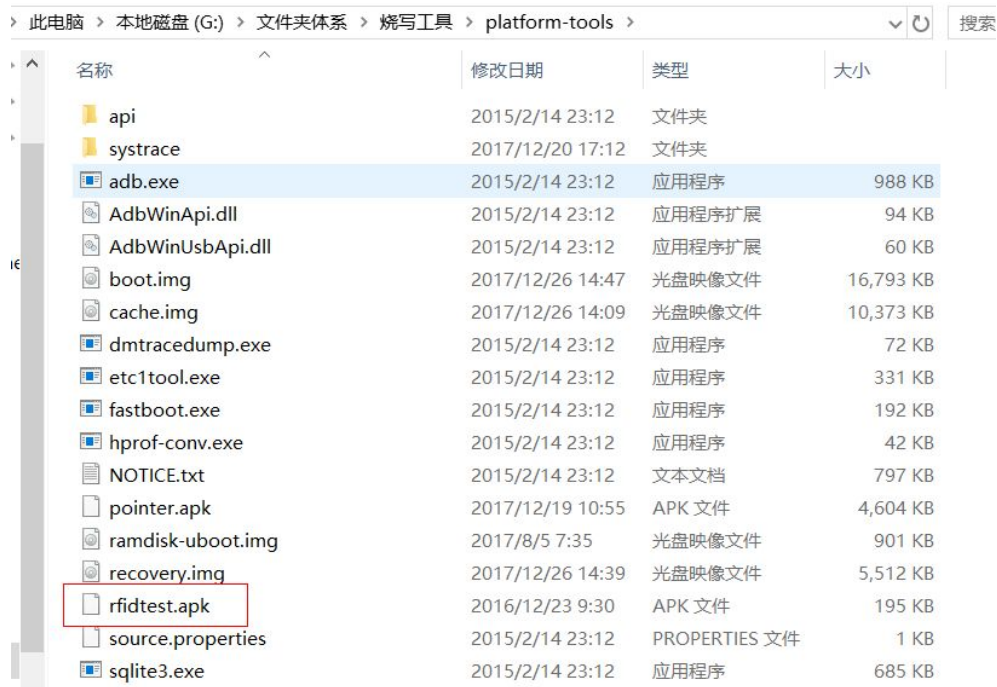
RFID 模块与开发板的连接如下图所示，可以看到上电后 RFID 模块的红色 LED 常亮。



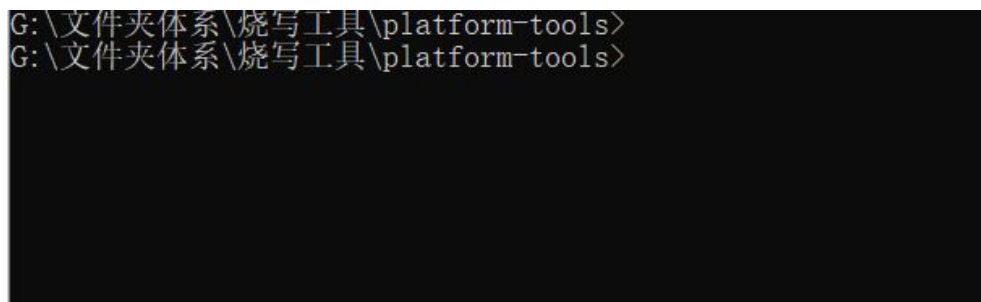
使用 otg 线将开发板连接到电脑，在开发板屏幕弹出的如下界面中点击 确认，授予 adb 调试权限。



将压缩包中 “rfidtest/bin” 下的 “rfidtest.apk” 拷贝到烧写文件夹 “platform-tools” 中，如下图所示。



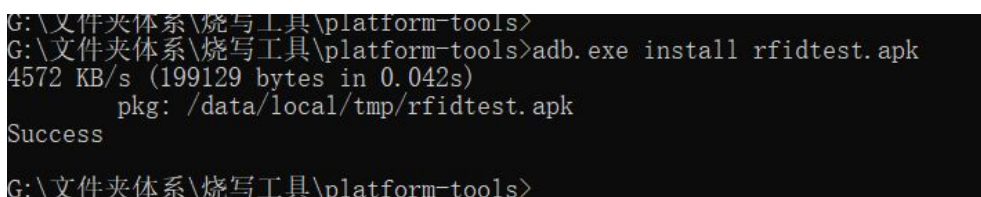
在当前文件夹中，在没有选中任何文件的情况下，按住 shift 键同时鼠标在空白处右键，在弹出的窗口中点击“在此打开命令窗口（W）”，便在当前目录打开了命令提示符，如下图所示。



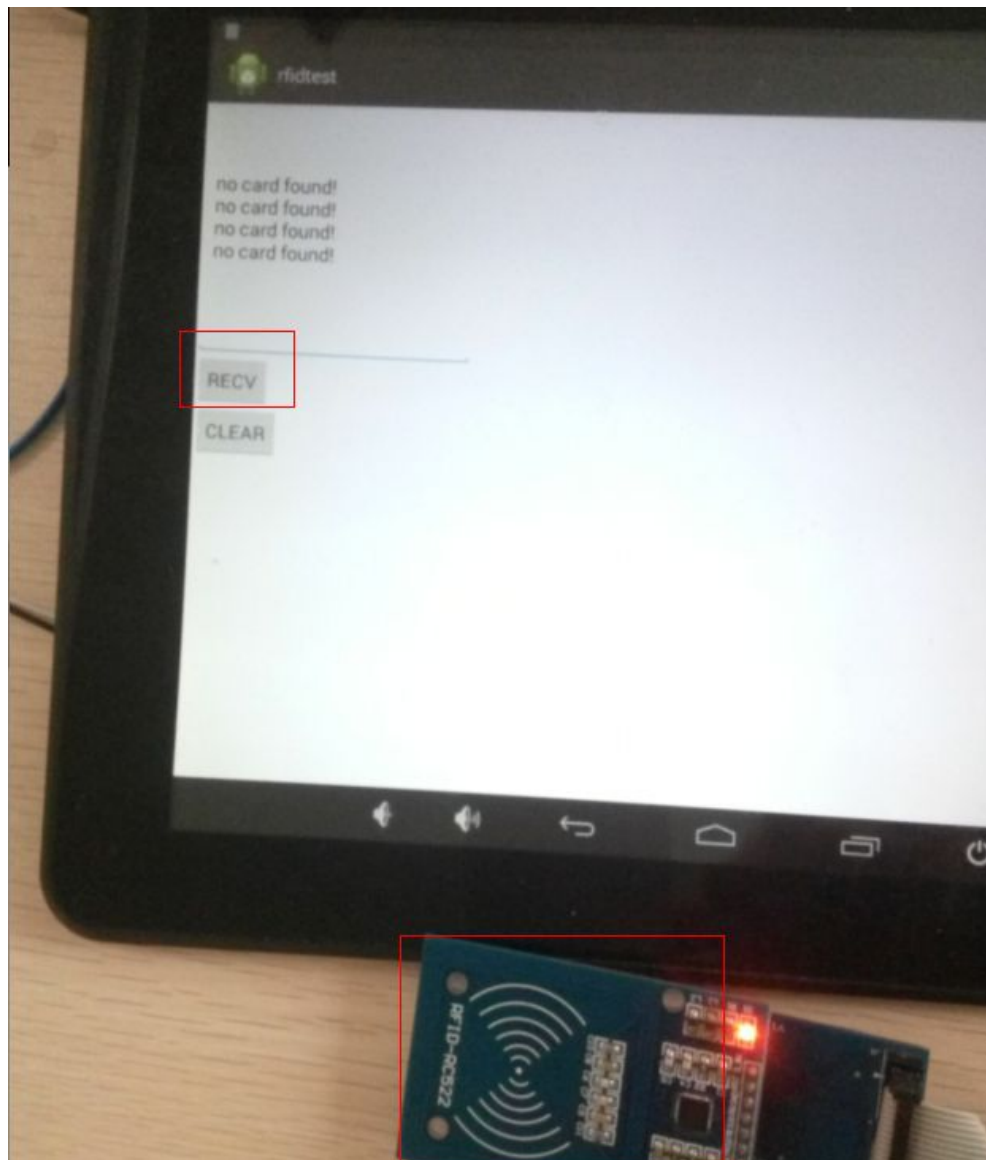
输入命令“adb.exe devices”，如下图所示。



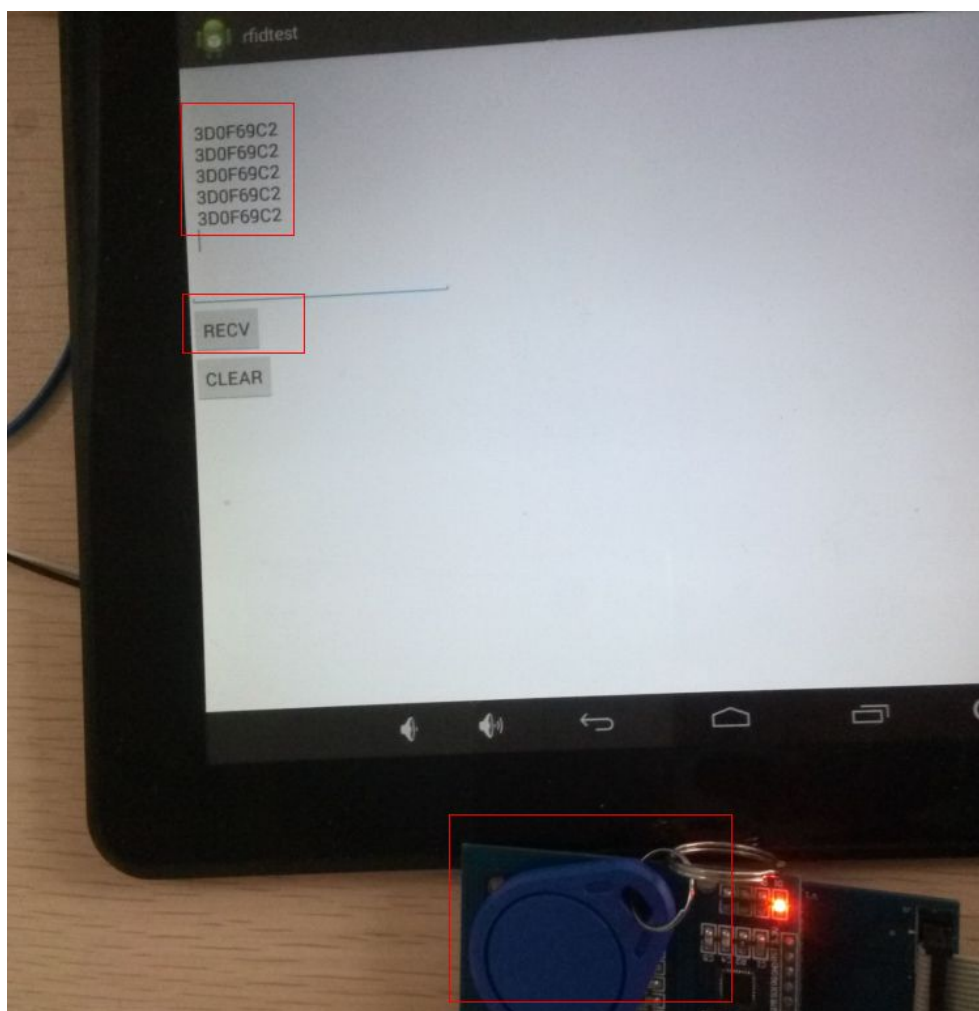
输入命令“adb.exe install rfidtest.apk”在开发板安装 rfidtest.apk,如下图所示。



可以看到 app 已经安装成功，此时在开发板打开名为“rfidtest”的 app，首先将卡片远离 RFID 模块，并点击屏幕上面的“RECV”按钮，如下图所示。



可以看到屏幕上显示“no card found”。点击屏幕上面的“CLEAR”按钮，然后将卡片贴近 RFID 模块，再次点击屏幕上的“RECV”按钮，如下图所示



可以看到 RFID 模块读取到了卡片数据，Android 系统的 RFID 模块测试到此结束。

联系方式

北京迅为电子有限公司致力于嵌入式软硬件设计，是高端开发平台以及移动设备方案提供商；基于多年的技术积累，在工控、仪表、教育、医疗、车载等领域通过 OEM/ODM 方式为客户创造价值。

iTOP-6818 开发板是迅为电子基于三星最新八核处理器 6818 研制的一款实验开发平台，可以通过该产品评估 6818 处理器相关性能，并以此为基础开发出用户需要的特定产品。

本手册主要介绍 iTOP-6818 开发板的使用方法，旨在帮助用户快速掌握该产品的应用特点，通过对开发板进行后续软硬件开发，衍生出符合特定需求的应用系统。

如需平板电脑案支持，请访问迅为平板方案网 “<http://www.topeet.com>”，我司将有能力为您提供全方位的技术服务，保证您产品设计无忧！

本手册将持续更新，并通过多种方式发布给新老用户，希望迅为电子的努力能给您的学习和开发带来帮助。

迅为电子

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